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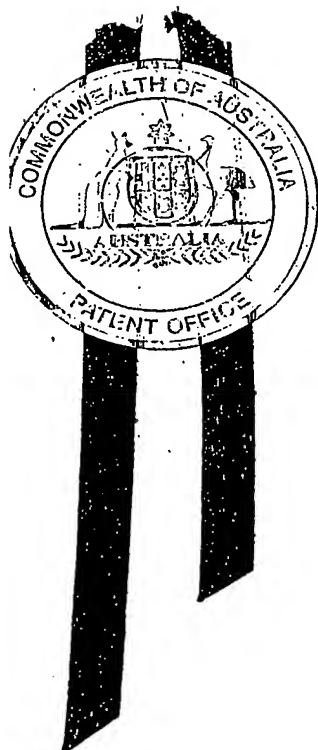
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I, SMILJA DRAGOSAVLJEVIC, TEAM LEADER EXAMINATION
SUPPORT AND SALES hereby certify that annexed is a true copy of the
Provisional specification in connection with Application No. PS 1232 for a
patent by AUSTRALIAN ARROW PTY LTD as filed on 15 March 2002.



WITNESS my hand this
Twenty-seventh day of March 2003

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PROVISIONAL SPECIFICATION

Invention Title: Vehicle automatic emergency response system

The invention is described in the following statement:

VEHICLE AUTOMATIC EMERGENCY RESPONSE SYSTEM

This invention relates in general to the automated response of vehicles to emergency situations, and in particular to systems for responding to major vehicle accidents utilising automatic emergency response signal transmission to remote monitoring systems.

The invention will be described with particular reference to its use in association with air bag equipped motor vehicles and motor cycles. It will be understood, however, that the invention is not limited to use with these devices and may be used with other triggering devices and in other applications where automatic alerting of emergency services and vehicle location are required.

It is known that early response to emergency situations can significantly reduce the chance of fatality or significant permanent disability in many vehicle crash incidents. One form of known implementation of a system for providing an automatic response to a vehicle incident, such as air bag deployment, is to automatically send a message using the mobile phone network with GPS or possibly cell based positioning. A deficiency of such systems is that it is impractical to provide 100% coverage particularly in remote areas as well as drop outs in low population areas or difficult terrain. And yet it is in precisely these areas that abnormally high occurrences of serious accidents are likely to occur that need communication means to report the incident get required assistance.

One solution is use of satellite phone network, but these tend to be large, heavy and very expensive and consequently rarely carried and require subscription with associated cost.

It is therefore desirable to provide an improved form of automatic emergency response that alleviates the disadvantages of known systems.

It is also desirable to provide a system that is economical to manufacture and install in vehicles or other applications.

One aspect of this invention provides a system for providing an automatic emergency response from a vehicle including actuating means, the system including means to transmit a coded signal to a satellite and means to transmit at least one beacon signal for manually locating the vehicle by ground based search parties, for example where a vehicle has left the road and/or is covered in snow, when the actuating means triggered by one or more designated events, such as an air bag deployment.

In one particular form of this invention as applied to a motor vehicle, the system transmits a packet of information indicating a request for assistance together with the last known position of the vehicle from a GPS unit. Other data may be included in the packet of information, such as vehicle and incident description and apparent crash severity, as can be determined from air bags' deployed rate of changes in speed and direction, and the number of occupants if known. The periodic beacon signal may be transmitted by a radio beacon commencing periodic transmission for homing for manual location. The radio beacon could include GPS data or other coding that could assist in locating the vehicle from the ground, but is otherwise simple to maximise battery life. The system may be powered from its own battery and be fundamentally self-contained to ensure maximum ability to survive a major incident.

In a variant of this system, the actuating module could be attached to a motorcycle and may include accelerometers or other sensors.

In a further variant of this system, the radio beacon could be replaced or supplemented by bright pulsing lamp or other periodic light source to attract attention by anyone who may be passing by or searching.

In a yet another variant, the system may interface to external components such as a GPS or mobile telephone system. Assuming the vehicle is no longer moving after the incident, it may be sufficient that the GPS information is fed continuously to the system and that it will transmit with the last known established position from the external system. Further if a communication system can establish

a call using the mobile telephone network, the request for assistance can be directed via that service rather than the satellite emergency network.

In another variation, the radio beacon could be replaced or supplemented by bright pulsing lamp or other periodic light source to attract attention by anyone who may be passing by or searching without need for special equipment deployment further enhancing the possibility of early detection and response.

In order that the invention be more readily understood, an exemplary, non-limiting embodiment there of, will now be described with reference to the accompanying drawing wherein:

Figure 1 shows an automatic emergency response system 1 located in a passenger vehicle application.

The system 1 is mounted in a relatively protected area of the vehicle such as rear parcel shelf or forward crash pad and may include a battery 2, control circuitry 3, satellite transmitter 4, radiolocation beacon transmitter 5, strobe lamp 6, GPS unit 7. The vehicle is also equipped with an accelerometer 8. The control circuitry 3 is capable of generating an encoded signal for transmission by the satellite transmitter 4 and generating periodic signals from the radio beacon transmitter 5 and the strobe light 6. It is to be noted that the transmitters include integral antennas to avoid risk of damage or separation during impact. The control circuitry 3 initiates actions on signal from an actuating means such as an air bag 9 or from the internal accelerometer 8. The control circuit unit also manages and monitors the condition of the internal battery 2 with energy for charging from the vehicle battery 10 or alternator. To reduce the incidence of accidental triggering, the system 1 maybe connected to the ignition circuit 11 so that the unit will not activate unless the ignition is on or recently been on at the time of the incident.

By the above means the present invention provides a unique advantage and overcomes the operational difficulties of the prior art, having far greater coverage and superior likelihood of a timely response.

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A major advantage of the present invention is that it provides a coverage in areas where mobile telephones are unlikely to be serviceable and communication requests for assistance are critical as well as mechanisms to assist in location in difficult terrain with or without sophisticated tracking equipment.

5 A further advantage is the cost of such a system could be less than a conventional phone system as neither bi-directional communication facilities nor complex network protocols are required.

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Figure 1

